



THE OBSERVER

East Valley Astronomy Club



NGC 7714 After Collision
APOD June 9, 2015 - NASA, ESA

EVAC This Month

by Don Wrigley

Claude Haynes and I will be at the South Rim of the Grand Canyon for the annual star party, from June 4th through June 9th. I've done a few of these events and they are always great fun, although the last one I did had weather issues (it rained a lot). I hope this year will be clear.

For those who cannot make it to the Grand Canyon, you might want to head out to Alma, New Mexico on June 4th. They are celebrating being named an International Dark Sky Sanctuary, and are having a star party at the Gila National Forest. Details are available at the website: <http://cosmiccampground.org/>.

I should point out that this is the 100th anniversary of the National Park Service, and that the Grand Canyon is working with the International Dark Sky Alliance to become certified as a dark sky site.

Don't forget to show up an hour earlier (6:30 PM instead of 7:30 PM) for this month's club meeting. We are having our annual June "Starbaque" to celebrate the Solstice (or whatever you like!). Bring a dessert or a side dish and we provide the rest. No speaker this month - just food, conversation, and a swap meet for fun. Members are encouraged to

UPCOMING EVENTS:

Deep Sky Party - June 4

Public Star Party - June 10

EVAC Monthly Meeting - June 17

Explore the Night Sky - June 20

Local Star Party - June 25

Check out all of the upcoming club events in the Calendars on page 9.

INSIDE THIS ISSUE:

<i>EVAC This Month</i>	1
<i>If It's Clear...</i>	2
<i>History Tidbits from the June Sky</i>	3
<i>Announcements</i>	4
<i>Classified Ads</i>	6
<i>Meeting Maps</i>	8
<i>Calendar</i>	9
<i>Membership Form</i>	10

EVAC This Month

Continued from page 1

bring along any equipment they no longer use and offer it for trade (or sale) to anyone who might make use of it.

Hope to see you there.

Don Wrigley

If It's Clear...

by Fulton Wright, Jr. Prescott Astronomy Club

June 2016

Celestial events (from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find information) customized for Prescott, Arizona. All times are Mountain Standard Time.

Remember, Mars was at opposition last month, so it will appear to shrink in size as the month progresses. You won't have to wait so long for it to be fairly high as it moves into the evening sky. Jupiter and Saturn are also well placed for observation this month.

On the night of Thursday, June 2, Saturn is at opposition and is visible all night.

On Saturday, June 4, it is new Moon and you have all night to hunt for faint fuzzies.

On Wednesday, June 8, after about 8:00 PM, you can observe Mare Crisium on the Moon at its best. Look for the Moon 35 degrees above the west horizon after the Sun has set. Libration tips the round mare near the limb of the Moon toward us.

On Saturday, June 11, the Moon is at first quarter phase and sets at 12:45 AM (Sunday).

On Monday, June 13, at 9:34 PM Ganymede goes behind Jupiter. 11 minutes later, Io does the same thing.

On Tuesday, June 14, from 8:10 PM to 10:21 PM, Io's shadow is on Jupiter.

On Sunday, June 19, at 7:07 PM (39 minutes before sunset), the full Moon rises, spoiling any chance of seeing faint fuzzies for the night.

On Monday, June 20, it is the summer solstice and the nights will slowly get longer.

On Friday, June 24, from 8:34 PM to 11:34 PM, Ganymede's shadow is on Jupiter.

On Saturday, June 25, from 8:41 PM to 11:20 PM, Europa's shadow is on Jupiter. Also, Pluto will be passing by 3rd magnitude Pi Sagittarii. It will be less than 3 arc-minutes from it. If you would like to find Pluto, you might look the night before and the night after, and look for the 14th magnitude dot which moves from night to night.

On Monday, June 27, the Moon is at last quarter phase and rises at 12:51 AM (Tuesday).

The Backyard Astronomer

by Bill Dellinges (June 2016)

History Tidbits from the June Sky

When you think June, you might think summer, but most of the night sky is actually filled with spring constellations. With the exception of zero magnitude Arcturus and first magnitude Spica, the spring sky is relatively devoid of bright stars. That's because we are looking ninety degrees northward away from the plane of our Galaxy. In fact, the Galactic North Pole can be found almost directly overhead in Coma Berenices (Berenice's Hair). The constellation is very faint, only represented by 3 stars forming an inverted L. It was created in 1551 by Dutch cartographer Gerardus Mercator. While technically not a constellation until then, the faint glow of MEL 111, a large open cluster only 288 light years away, represented since Greek times the legendary hair of Queen Berenice who sacrificed her locks for the safe return of her husband in battle. On some star charts from antiquity, the nebulous appearance of Mel 111 was used to represent the tuft of hair at the end of Leo's tail.

The aforementioned Arcturus is the fourth brightest star in the sky. Lovely as it is, one wonders what it's doing here off the plane of the Milky Way. Edmund Halley discovered proper motion in 1718 when he compared the positions of Arcturus, Aldebaran and Sirius with older star charts and noticed a slight change in their position. Arcturus was moving more than one degree across the sky every 2000 years. Its velocity relative to us is 76 miles per second in a highly inclined orbit that will position it in the constellation Corvus in 100,000 years. One interesting theory is that Arcturus is one of 52 stars called the Arcturus Group that belonged to another galaxy that collided with our galaxy billions of years ago and had taken up residency in the Milky Way. We have harnessed its light in one unusual manner. Light from Arcturus gathered by the Yerkes's Observatory 40" refractor, utilizing photo-electric cells, turned on the lights at the 1933 Chicago World Fair. At the time Arcturus was thought to be 40 light years away and light leaving the star during the 1893 Chicago World Fair would arrive in 1933 to start that fair. Alas, we have since determined the distance to Arcturus to be 37 light years.

In the north we find the Big Dipper asterism slipping past the meridian into the western sky. Of course these are only the seven brightest stars of Ursa Major, the Great Bear, the third largest constellation in terms of square degrees of sky. The first and second largest constellations, Hydra and Virgo respectively, are also in the June sky. At the bend of

the Dipper's handle is Mizar, a popular second magnitude double star often observed by amateur astronomers. Those with keen eyesight might notice Mizar has an unrelated companion, fourth magnitude Alcor, twelve arc minutes away. Mizar has three unique distinctions: It was the first double star discovered (G. Riccioli, 1650), the first double star to be photographed (G. Bond, 1857) and the first star discovered to have an unseen companion spectroscopically (E. C. Pickering, 1889).

Nicely placed in the north is Draco the Dragon winding its body between Ursa Major and Ursa Minor. A line perpendicular from the two end stars in the bowl of the Little Dipper extended ten degrees takes you to Alpha Draconis or Thuban. This star was our North Star around 2800 BC during the building of the pyramids in Egypt. Due to precession, a gravitational interaction of the Sun and Moon on Earth's equatorial bulge, the Earth's axis of rotation wobbles like a top over a period of about 26,000 years. Where ever the axis points at a given time, that will be Earth's North Celestial Pole and if there happens to be a visible star on or close to that point in the night sky, that will be Earth's North Star. Since 2800 BC that axis has moved to a point less than a degree from Polaris (44'), the star at the end of the tail of Ursa Minor (or handle of the Little Dipper). That's why it's named Polaris, the pole star. The closest the axis will point to Polaris will be 28' in 2100 AD.

Earth's Ecliptic North Pole resides very near NGC 6543, the Cat's Eye planetary nebula. In 1728, English astronomer James Bradley was observing Gamma Draconis as he attempted to detect its parallax (unsuccessfully) and discovered the aberration of starlight (and nutation). This interesting effect on the path of starlight traveling down the tube of a telescope on Earth confirmed Earth moved through space – not that many were challenging that in 1728 – and allowed Bradley to determine the best estimate of the velocity of light up to that time. Aberration of starlight would be one of several factors to be untangled from calculating the parallax of a star, which was accomplished in 1838 by Friedrich Bessel when he determined 61 Cygni was 11.4 light years away.

Interesting astronomical tidbits of history can be gleaned behind the panoply of the constellations. Time spent looking at the stories behind great discoveries can be very rewarding.



Adam Block, our most recent speaker, is director of outreach for the SkyCenter on Mt. Lemmon, just north of Tucson. They offer several programs using the 32" Schulman Telescope. Programs include:

SkyNights Star Gazing - 5 hour program with a cost of \$65 per adult

Astronomy with Adam Block – 5 hour program with a cost of \$75 per adult

Making Every Pixel Count – 3 day onsite (lodging included) seminar at a cost of \$925 per person

More information is available on their website – click the Tickets icon for a schedule and to reserve. <http://skycenter.arizona.edu/programs/public/skynights>

Find Out What's Happening – Join EVAC-Announce List

If you would like to receive email announcements about EVAC meetings and activities please join the EVAC–Announce mailing list. Click on the link below to subscribe. Enter your full email address in the box titled User Options and press OK. You will receive a confirmation email. Your privacy is respected by EVAC and we will never sell your email address, or use it for non-club relevant solicitations. This mailing list is designed for communication from EVAC, and does not enable users to respond to the message. If you wish to contact club officers, please use the list on the Contact-Us tab.

To subscribe to the EVAC – Announce mail group click:

<http://www.freelists.org/list/evac-announce>

To unsubscribe use the same link, enter your email address and select Unsubscribe from the “Choose An Action” list.

NEW MOON ON JUNE 4 AT 23:00

FIRST QUARTER MOON ON JUNE 12 AT 04:10

***FULL MOON ON JUNE 20 AT 07:02**

LAST QUARTER MOON ON JUNE 27 AT 14:19



**TELESCOPES
FOR SALE**

*Come To Our Amazing
Telescope Shop*

We buy, sell and trade binoculars and telescopes
Daily programs with our onsite planetarium
Weekly star-gazing events!
162 E. Wickenburg Way in historic downtown
Wickenburg's Mecca Plaza
Open 11a.m.-5p.m. (W, F, S, Su) & 5-9p.m. (Tu)
623-217-6635 ★ 928-684-8842



5757 N. Oracle Road Tucson, AZ 85704 520-292-5010
www.starizona.com

***Looking for that perfect weekend activity?
Why not resolve to getting involved?
Contact Claude Haynes to join the staff at GRCO
Email: grco@evaconline.org***

Webcam imaging made easy!

Time lapse

**Planetary
& lunar
imaging**



**Motion
detection**

Meteor capture

Free trial!

www.AZcendant.com

PHOTON

INSTRUMENT LTD.

SALES REPAIR SERVICE RESTORATION

ASTRONOMICAL TELESCOPES

WARREN & JUDY KUTOK

122 E. MAIN STREET MESA, AZ. 85201

480-835-1767 800-574-2589

Upcoming Meetings

June 17

July 15

August 19

September 16

October 21

November 18

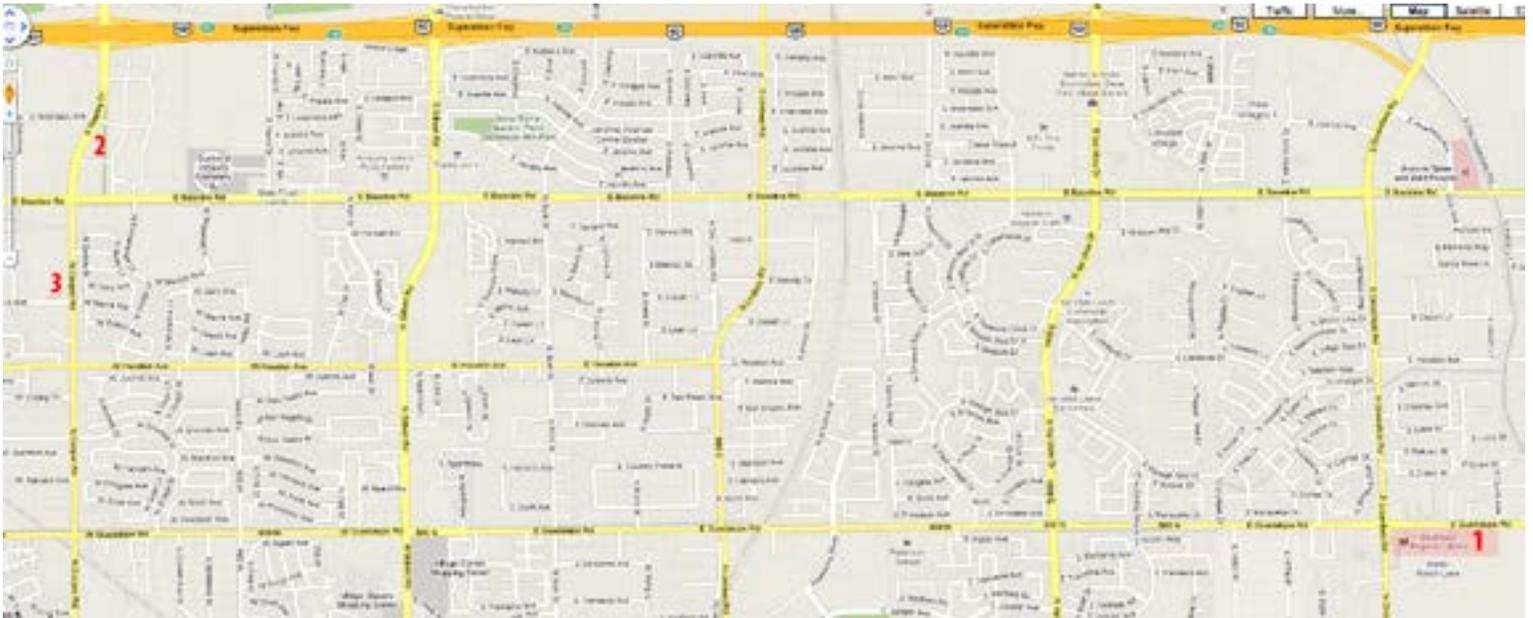
December 16

January 20

The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our meetings are held on the third Friday of each month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Road; on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30 pm.

Visitors are always welcome!



1 Southeast Regional Library
775 N. Greenfield Road
Gilbert, Az. 85234



JUNE 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

June 4 - Deep Sky Party

June 20 - Explore the Night Sky

June 10 - Public Star Party

June 25 - Local Star Party

June 17 - EVAC Monthly Meeting

JULY 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July 2 - Deep Sky Party

July 18 - Explore the Night Sky

July 8 - Public Star Party

July 23 - Local Star Party

July 15 - EVAC Monthly Meeting

East Valley Astronomy Club -- 2016 Membership Form

Please complete this form and return it to the club Treasurer at the next meeting or mail it to EVAC, PO Box 2202, Mesa, Az, 85214-2202. Please include a check or money order made payable to EVAC for the appropriate amount.

IMPORTANT: All memberships expire on December 31 of each year.

Select one of the following:

- New Member
 Renewal
 Change of Address

New Member Dues (dues are prorated, select according to the month you are joining the club):

- | | |
|---|---|
| <input type="checkbox"/> \$30.00 Individual January through March | <input type="checkbox"/> \$22.50 Individual April through June |
| <input type="checkbox"/> \$35.00 Family January through March | <input type="checkbox"/> \$26.25 Family April through June |
| <input type="checkbox"/> \$15.00 Individual July through September | <input type="checkbox"/> \$37.50 Individual October through December |
| <input type="checkbox"/> \$17.50 Family July through September | <input type="checkbox"/> \$43.75 Family October through December |
- Includes dues for the following year*

Renewal (current members only):

- \$30.00 Individual**
 \$35.00 Family

Name Badges:

- \$10.00** Each (including postage) Quantity: _____

Name to imprint: _____

Total amount enclosed:

Please make check or money order payable to EVAC

- Payment was remitted separately using PayPal
 Payment was remitted separately using my financial institution's online bill payment feature

Name:

Phone:

Address:

Email:

City, State, Zip:

Publish email address on website
 URL:

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month.

- | | |
|--|---|
| <input type="checkbox"/> General Observing | <input type="checkbox"/> Cosmology |
| <input type="checkbox"/> Lunar Observing | <input type="checkbox"/> Telescope Making |
| <input type="checkbox"/> Planetary Observing | <input type="checkbox"/> Astrophotography |
| <input type="checkbox"/> Deep Sky Observing | <input type="checkbox"/> Other |

Would you be interested in attending a beginner's workshop? Yes No

How did you discover East Valley Astronomy Club?

PO Box 2202
Mesa, AZ 85214-2202
www.evaonline.org

All members are required to have a liability release form (waiver) on file. Please complete one and forward to the Treasurer with your membership application or renewal.

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month. Please send your contributions, tips, suggestions and comments to the Editor at: news@evaonline.org. Contributions may be edited. The views and opinions expressed in this newsletter do not necessarily represent those of the East Valley Astronomy Club, the publisher or editor.

Material in this publication may not be reproduced in any manner without written permission from the editor. ©2005-2014

The East Valley Astronomy Club is a 501(c)(3) nonprofit charitable organization.

www.evaonline.org

East Valley Astronomy Club
PO Box 2202
Mesa, Az. 85214-2202

President: Don Wrigley

Vice President: Claude Haynes

Secretary: Jan Barstad

Treasurer: Brooks Scofield

Board of Directors: Dan Hahne, David Hatch, Ray Heinle, Marty Pieczonka & Wayne Thomas

Events Coordinator: Lynn Young

Property Director: David Hatch

Refreshments: Jan Barstad

Observing Program Coordinator: Marty Pieczonka

AL Representative: David Douglass

Membership: Les Wagner

Newsletter Editor: Marty Pieczonka

Webmaster: Marty Pieczonka

SkyWatch Coordinator: Claude Haynes

Observatory Manager: Claude Haynes